

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 14 SEP 2004



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Applicant's or agent's file reference K 1005 PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/US 03/19712	International filing date (day/month/year) 23.06.2003	Priority date (day/month/year) 24.06.2002
International Patent Classification (IPC) or both national classification and IPC C09J163/00		
Applicant 3M INNOVATIVE PROPERTIES COMPANY et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
 - ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:
 - I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 08.01.2004	Date of completion of this report 13.09.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Marsitzky, D Telephone No. +49 89 2399-7275 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/US 03/19712**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-37 as originally filed

Claims, Numbers

1-8 received on 26.08.2004 with letter of 26.08.2004

Drawings, Figures

1-4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-5
	No: Claims	6-8
Inventive step (IS)	Yes: Claims	1-5
	No: Claims	6-8
Industrial applicability (IA)	Yes: Claims	1-8
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US 03/19712

1. Article 33 (2) PCT:

- 1.1 D1-D3 do not disclose the special organic tack reducing agent - thus the subject matter of claims 1-5 is novel in view of D1-D3.
- 1.2 D1 and D3 (see p. 4, l. 6-9) disclose that the heat curable adhesive is coated on a polymer film - which can be regarded as a backing layer. Since claim 6 states that the backing layer exhibits only as an option a elongation of not less than 10 % and the polyimide film normally exhibits as a thermoplast material a certain elongation capacity, the subject matter of claims 6-8 is not novel.

2. Article 33 (3) PCT:

D3 is considered to represent the closest prior art, the difference compared to claims 1-5 being the use of a special tack reducing organic agent. The objective technical problem can be formulated as to provide heat curable adhesive compositions with improved releasability when being used as a dicing tape in semiconductor production. Since none of D1-D3 gives hints on how to solve the problem, the subject matter of claims 1-5 is considered to be inventive.

REPLACED BY
ART 34 AMDTClaims

1. A heat curable adhesive composition comprising: a caprolactone-modified epoxy resin; and a tack reducing component.

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2. A process for preparing the adhesive of claim 1 comprising: providing a caprolactone-modified epoxy resin; and blending therewith a tack reducing component.

3. An adhesive article comprising:

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a layer of heat curable adhesive according to claim 1; and

a backing layer carrying said adhesive layer on at least a portion of the backing layer.

4. A semiconductor apparatus comprising a substrate having at least one

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semiconductor component mounted thereon, wherein said semiconductor component is fixed to a component-mounting surface of said substrate via a layer of heat curable adhesive according to claim 1.

5. The semiconductor apparatus according to Claim 4 further comprising another semiconductor component mounted to the at least one semiconductor component.

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6. An adhesive article comprising a heat curable adhesive layer containing a caprolactone-modified epoxy resin, and a stretchable backing layer, optionally having an elongation of not less than 10%.

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7. A semiconductor apparatus comprising a substrate having at least one semiconductor component mounted thereon, wherein the semiconductor component is fixed on the surface of the substrate by means of a heat curable adhesive layer containing a caprolactone-modified epoxy resin.

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REPLACED BY
ART 34 AMDT

8. A process for preparing a semiconductor apparatus comprising a substrate having at least one semiconductor component mounted thereon comprising:

5 laminating an adhesive article on one side of a semiconductor wafer having a plurality of the semiconductor components fabricated therein, the adhesive article comprising a heat curable adhesive layer containing a caprolactone-modified epoxy resin and a stretchable backing layer, optionally wherein said backing layer has an elongation of not less than 10%;

10 discretely separating the semiconductor components while maintaining the semiconductor wafer and adhesive article in a laminated state;

stretching the backing layer of the adhesive article, followed by separating the semiconductor components with the heat curable adhesive layer adhered thereto from the backing layer; and

fixing the semiconductor components to the surface of the substrate by means of the heat curable adhesive layer.

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